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[WHOLE NO. 70.

Congressional Documents.

NATIONAL FOUNDRIES.

Mr. BRODHEAD, from the select committee on the subject, made the following report, (April 27:)

The select committee, to whom were referred sundry memorials, praying for the establishment of national foundries for the fabrication of cannon, &c., for the land and naval service, submit the following report:

To provide for the common defence of the country, is one of the most important and sacred duties of the General Government. It was one of the main objects for which the Union was formed. We know, historically, that the rights of no nation, however just, have been respected merely because they were so. To prevent insult, we must be able to repel it. An ability for war, a capacity for resistance to hostile encroachments, always give national importance, and *command peace* upon honorable and just terms. All experience teaches that no nation, however anxious for peace, can expect to escape occasional collisions with other powers. Hence the parting admonition of the father of his country, "in peace, prepare for war," should be strictly observed. Had it been obeyed, much blood and treasure would have been saved during the last war; our capital never would have been sacked, and left a heap of smoking ruins. But to enlarge upon topics of this kind is unnecessary.

As brevity in congressional reports has become essential, considering the number to be made and read, the committee will only *state* the facts and arguments which have led them to recommend the establishment of national foundries, without elaborating much thereon.

All the distinguished men who have occupied the presidential chair, have recommended the establishment of extensive fortifications, &c., for the defence of the country. Some of them have specifically recommended the establishment of foundries and military factories to be owned by the Government, and to be under the direction and management of experienced and responsible officers thereof. During the administration of Washington, an act was passed, in pursuance of his recommendation, authorizing the establishment of a national foundry or foundries; but funds could not be obtained to carry out the provisions of the law, and it was repealed. The country at that time was in a state of exhaustion, caused by the Revolution, and burdened by the immense debt thereof.

In 1837, the attention of Congress was again specially called to the subject of national foundries by

President Van Buren, and another effort made to obtain their establishment. But it failed, as all similar efforts had before, when the recollection of the disasters of war, for which the country was unprepared, was not fresh, and an immediate prospect of war was not apparent.

In 1840, so great was the anxiety on the subject, that a board of ordnance officers were authorized to visit Europe, with a view of acquiring a practical knowledge, from actual observation, of the process of manufacturing and casting iron and brass cannon, the nature of the ores and pig metals used, the description of furnaces, and the kind of fuel used therein, and the mode and regulations for the inspection and proof thereof. This board visited all the principal foundries, &c., in England, and upon the continent, (all of which are under the superintendence and control of Government officers,) and upon their report to the Secretary of War, in March 1841, embodying much useful information, the establishment of national foundries was again recommended.

The fortifications of this Government have cost many millions of dollars. The armament thereof is not yet complete. About 4,000 pieces of cannon are necessary fully to equip them, besides a very large number of balls, field trains, and cannon for the naval service.

It is a fact well known in the history of this country, and properly stated by the Secretary of the Navy in his report to the present Congress, that during the late war more of our seamen were killed or wounded by the explosion of our cannon, than were killed or wounded by those of the enemy. Our gallant sailors feared much more our own cannon than those of the enemy; and the dread and apprehension thus produced, greatly prevented, in some instances, efficient exertion, and led to most disastrous consequences. All the cannon now or heretofore owned by this Government were either taken from our enemies in time of war, or fabricated at establishments owned by private individuals, whom, it is not uncharitable to suppose, were quite as anxious to get large prices therefor, as to make them of the best materials and in the best manner. Those taken from our enemies are of different calibers, have been a long time in use, and never were worth much. The history of the late war, so far as it regards the bursting of our cannon, and the difficulty of ascertaining the strength and soundness of those made by private contractors, by any tests which may be applied after their construction, ought to cause the most anxious inquiry as to the best manner and means (not the cheapest) of fabricating the same. It is believed that all the operations, from the selection and smelting of the ores, to the casting and

proving of the guns, should be under the personal supervision and immediate control of scientific and responsible officers. The late explosion of the gun on board the steamship-of-war Princeton, (so lamentable in its consequences,) clearly proves that no tests which can be applied can guard against latent defects. [See report of officers upon the subject.]

The Government being the only purchaser of ordnance, the establishment of national foundries will effectually prevent private individuals owning foundries from dictating their own terms, in times of emergency. It would furnish the means of making suitable experiments, of testing, mixing, and comparing the best kind of metals, establish a standard of quality and proof, and improve the skill of our mechanics.

All civilized nations have adopted some regular mode of supplying themselves with the munitions of war, so as to be provided against any contingency or emergency adverse to the public interests. The people of this country have always been opposed to standing armies, as contrary to the genius of our institutions, dangerous to public liberty, and tending to onerous taxation. Hence the necessity as well as economy of having an ample supply in store, of all the means of defence, to be used by the militia and volunteers whenever a proper occasion should occur.

Two national armories for the manufacture of small arms were long since established; one at Harper's Ferry, in Virginia, and one at Springfield, in Massachusetts, and regularly maintained by annual appropriations to the present time. Their manifest utility is now known and admitted by all. The great improvement in the construction of small arms is mainly to be attributed to the experiments allowed, and constant support given by the Government to these establishments. Individual means and divided efforts would have been inadequate to the task. Our small arms are now superior to those of any other nation; our ordnance are not. The same facts and reasons which induced the Government to establish and continue these armories, apply with irresistible force in favor of the establishment of national foundries. The fabrication and testing of cannon is a much more difficult and important task than the manufacture of small arms. The bursting of a rifle is not to be compared in its consequences to the bursting of a cannon. The one may injure a single man; the other may kill or wound hundreds, lessen the courage of our soldiers, tarnish the arms of our country, and render our enemies victorious.

Congress has heretofore appropriated for the ordnance department about \$90,000 per annum. It is believed the establishment of national foundries will not greatly augment that sum. Private foundries would not at once be dispensed with, if ever. The Government would be supplied with ordnance, as it now is with small arms, partly by private individuals, and partly by the national establishments. A useful competition would thus be kept up, and we would have a reliable source of supply whenever the public exigencies might require it.

The question of location has been an embarrassing one, so many were the sites recommended. After a

careful consideration, however, of the various advantageous locations in different portions of the Union, the committee have agreed to recommend the establishment of two foundries, one in Pennsylvania, in or near the borough of South Easton, in the county of Northampton; and one in the State of Georgia, in Cass county, at or near where the Great Western and Atlantic railroad crosses the Etowah river. Each of these locations, it is believed, combines all the advantages requisite for national foundries. Both are sufficiently far from the seaboard to be secure from the sudden incursions of an enemy, yet having cheap river, canal, and railroad communications with our fortifications, naval depots, dock-yards, frontier States, lakes, and Territories; and each affords a ready and cheap supply of water-power, stone-coal, charcoal, iron, clay, sand, provisions, and other materials.

The borough of South Easton is situated near the junction of the Lehigh and Delaware rivers, and near the junction of three canals, to wit: the Delaware division of the Pennsylvania canal, the Morris canal, and the canal of the Lehigh Coal and Navigation Company. It is on the banks of the latter, which passes through the great iron region of Northampton county, and extends into the great Lehigh coal regions in Carbon and Luzerne counties. By the Delaware canal, the city of Philadelphia can be reached by an uninterrupted navigation of seventy-eight miles. By the Morris canal, the distance to New York is one hundred and one miles. By means of the Delaware canal, and Delaware and Raritan canal, the route to New York is one hundred and twenty-six miles, without the use of the Morris canal; so that the means of transportation to the seaboard and our two great Atlantic cities is complete, from whence articles can be transported to any part of the Union. Independent of this, facilities of transportation to the western lakes and rivers will shortly be completed by means of the Lehigh canal and railroad, and other improvements which are now in progress.

The country in the vicinity of South Easton is very fertile, and the climate remarkably salubrious. On the streams in the neighborhood there are numerous merchant mills, in which 150,000 barrels of flour are annually manufactured from the grain of the surrounding country. Provisions and means of subsistence of every kind are very plenty and cheap. The iron ore in the vicinity is of a very superior quality, and of different kinds, and is now extensively worked in foundries, gun and tool factories, already established in the place. The water-power now in use is equal to any in the Union. The whole of the Lehigh river, which is one hundred yards wide, can be, and is now, commanded for the propelling of machinery, with a fall of about twenty-three feet.

The site in Georgia before mentioned is believed to be best adapted for the location of a foundry in the south. It is on the Etowah river, where the Great Western and Atlantic railroad (which is designed to connect the Atlantic coast with the waters of the west) crosses that river. From that spot

access can be had by railroad with the Atlantic at two points, viz. Charleston and Savannah. It is connected with the Tennessee river and waters of the west by the continuation of the Western and Atlantic railroad. The iron ore is believed to be the best which can be found south of the Potomac. The water-power is abundant, at all seasons of the year, to move any quantity of machinery, and bituminous coal and charcoal can be obtained without difficulty. It is in the midst of a healthy, fertile, and grain-growing country, and well adapted in every respect for an extensive foundry. Entertaining these views, the committee report a bill.

A BILL to provide for the establishment of National Foundries.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the sum of one hundred thousand dollars, or such portion of said amount as may be necessary, be paid out of any moneys in the treasury not otherwise appropriated, for the purpose of purchasing two suitable sites for national foundries, and the commencement of suitable buildings thereon, for manufacturing ordnance, projectiles, and other appendages for the land and naval service of the United States: one in or near the borough of South Easton, in the county of Northampton, and Commonwealth of Pennsylvania; and the other in Cass county, in the State of Georgia, at or near where the Great Western and Atlantic railroad crosses the Etowale river.

SEC. 2. And be it further enacted, That the President of the United States be, and he is hereby, authorized and required to make such purchase, and to call to his aid, in selecting and contracting for said sites, such competent officers in the public service as he may deem expedient.

SEC. 3. And be it further enacted, That such of the officers of the United States as the President may require, shall report a plan for said national foundries, together with the cost of all necessary buildings to carry them into useful but moderate operation; and such plans shall be so laid down as to show the capacity of each for being enlarged, whenever the national wants or emergencies may require their enlargement.

SEC. 4. And be it further enacted, That the said foundries shall be placed under the direction of the ordnance department of the army, and that two master founders shall be appointed by the President, with a salary for each not exceeding two thousand dollars per annum.

SEC. 5. And be it further enacted, That the President of the United States be, and he is hereby, authorized to establish regulations prescribing the manner in which said foundries shall be employed, in manufacturing ordnance for the land and sea service, respectively.

SEC. 6. And be it further enacted, That a report of the operations of said foundries, including the amount of the expenditures made, and of the articles manufactured therein, shall be annually laid before Congress.

Foreign Miscellany.

From the United Service Magazine.
REMARKS ON MILITARY BRIDGES.

At the close of the Peninsular war, the pontoon equipments of the service were still in a very imperfect state, being cumbersome and inconvenient to transport when on land, and insecure and difficult to manage when brought into use upon the water. The pontoons themselves were constructed upon erroneous principles, being without decks, and much too short in proportion to their breadth, and to the breadth of the superstructure to be supported; and, presenting great resistance to a current, they were in constant danger of being swept below the water and sunk, when great floods or gales of wind occurred*.

We find, indeed, that, during the Peninsular war, their inaptitude to encounter rapid currents produced consequences which had nearly proved fatal to the success of our arms on different memorable occasions; for instance, while our troops were carrying on the siege of Badajos, in March, 1812, heavy rains flooded the Guadiana, and the pontoon bridge, which had been thrown across that river, was destroyed, to the serious detriment of the operations of the sieget.

At the passage of the Garonne, also, previous to the battle of Toulouse, the insufficiency of the pontoons had nearly been attended with disastrous consequences, for when the bridge had been established below that city, and a great part of the army had crossed, the river suddenly rose, and many of the pontoons filled with water and went down before the bridge could be dismantled and withdrawn (a measure which it became absolutely necessary to adopt without loss of time,) leaving the troops on the bank next the enemy, in a situation which created the greatest anxiety for their welfare*. An ingenious and scientific officer, Sir James Colleton, witnessed this event, which may be supposed to have suggested to his mind the principle of the hollow wooden cylindrical pontoons, terminating in a shape presenting the least resistance to a current, which he

* To show how little we had advanced in this branch of military science for many years, it may be sufficient to say that some of the very pontoons which were employed by Marlborough were brought into use during the campaigns of the yet greater leader, who, a century after his day, conducted the British armies to victory.

+ "Orders were immediately sent to the 5th Division, then at Campo Magor, to invest the place on that side; but these troops were distant, and misfortunes accumulated. In the evening, heavy rain filled the trenches; the flood of the Guadiana ran the fixed bridge under water, sank twelve of the pontoons, and broke the tackle of the flying bridges; the provisions of the army could not then be brought over, and the guns and ammunition being still upon the right bank, the siege was upon the point of being raised.—*Napier's Peninsular War*.

"When nearly half the army had effected their passage, a sudden rising of the river threatened to carry away the bridge, and there was every reason to apprehend that the enemy would take advantage of the swollen and rapid state of the river to cast loose the floating mills which were moored in the Garonne, any one of which coming in contact with the bridge would have broken it. The river continuing to rise, the floor was first removed, and soon afterwards it was found necessary to remove the pontoons; for, although they were not deficient in the power of flotation, yet, having no decks, they filled with the violence of the current and the swell, and some were swamped."—*Douglas on Military Bridges..*

afterwards constructed, and which are distinguished by his name; and the exertions of other meritorious officers have not been wanting since to place our pontoon establishment on a very different footing from that on which it stood at the eventful period alluded to.* To Colonel Pasley, who has thrown so much light on military science in general, the Service is much indebted for his labors in this particular branch; and no higher encomium can be passed on Colonel Blanshard, as a scientific pontooneer, than to observe that his improved pontoon has not only been adopted in our own Service, but in that of Prussia and other military continental States.

The regulation tin or copper pontoon of cylindrical form, just alluded to, seems, together with its apparatus, to be as well devised and as convenient as any equipment can be, which is intended for conveyance on wheeled vehicles; and it is most desirable that such trains should continue to form part of the *materiel* of our armies in the field, wherever the roads through the scene of operations are practicable for long and heavy wheeled carriages†. It may therefore be conceded that little or nothing was left to desire as regards pontoon equipments of the heavier and more substantial sort intended for use in such localities; but the case seems different with reference to operations carried on in mountainous countries, or even in those which are only partially so, like the Spanish Peninsula. In carrying on warfare in such countries, every additional wheeled carriage accompanying an army must prove an additional source of anxiety and an additional encumbrance; and in this opinion we think we are borne out by the maxims and practice of the Great Captain of the age†. It is, besides, impossible to transport boats or pontoons on carriages to the bank of a narrow river, without being heard by the enemy, if occupying the opposite shore; and occasions frequently take place in war, when it would be most important to throw a bridge secretly and expeditiously across a river, before permitting any wheeled carriage to approach its banks. Numerous instances might be given where brilliant results have attended the due combination of stratagem with other means in effecting the passage of rivers; while, on the other hand, the employment of force alone on such

* Since then, also, Sir H. Douglas's valuable treatise on Military Bridges, just quoted, has been given to the public.

† These pontoons are also eminently calculated for the purpose of exercising the young officers and soldiers belonging to the branches of the Service employed in bridge-making, having great lightness and buoyancy compared with the old pontoons, and moving in an extraordinary manner, when formed into rafts, through the strong currents of the Medway, near Chatham, where the practice takes place; and also standing wonderfully the rough usage they unavoidably meet with on the shores of that river, which, at the spot mentioned, are thickly strewn with sharp broken flints and bottle-glass.

‡ We find, also, that, for the reasons given, commanders have occasionally been necessitated to destroy their pontoons previous to a retreat. "Hill, thinking the valley of the Tagus in that advanced season would not support the French army, and knowing Wellington to be pressed with superior forces in the north, chose the Guadarama. Therefore, burning his pontoons, and causing La China and the stores remaining there to be destroyed, on the night of the 30th, he retreated by different roads, and united his army on the 31st of October, near Majadahinda." —*Napier's Peninsular War*.

occasions has generally failed*. The first operations on such occasions are, therefore, usually undertaken with detached means, such as row-boats, seized wherever they are to be found, or rafts and flying bridges, constructed behind islands, or in streams adjoining the river which it is intended to pass; and this, because pontoons, transported on carriages for the formation of bridges, are too conspicuous to be employed in situations where every practicable deception should be used to keep the enemy in doubt as to the point threatened. The difficulty is greatly increased when the banks of the river are marshy, which we find was the case at the passage of the Linth in 1799, when wheeled conveyances could not approach that river until a road had been made with planks across a neighboring marsh, and the noise of the carriages, conveying the pontoons, upon it, was so great, as to alarm the enemy's posts and draw fire upon the convoy. What has now been said may stand as a reply to an opinion sometimes advanced, that wherever artillery can pass, so also can carriages conveying pontoons; and that there is, therefore, no necessity for a pontoon bridge equipment, adapted for carriage on the backs of animals, being on a larger scale than is required to support cavalry and infantry at extended order. It might, perhaps, be further observed, with reference to this opinion, that it does not appear certain that pontoons, of at least twenty feet long (which they ought to be to support guns,) can travel wherever the guns themselves can be taken in their shorter, stronger, and more manageable carriages.

We now turn to the improvement in military bridge making which is more particularly the subject of this notice, preceding the information which we have obtained respecting it, by some observations, which will not, we trust, appear irrelevant to the subject under consideration.

The use of inflated bags or eases composed of the skins of animals, for the purpose of supporting rafts, and even bridges, in military operations, seems to be of great antiquity. We are told that Xenophon was instructed by a certain native of Rhodes, how to pass his force across the Tigris by the adoption of such means; that Alexander's mighty army was conveyed in a similar manner over the Oxus; and that both Hannibal and Cæsar used some such rafts or bridges during their campaigns. The Emperor Julian is described as having thrown a bridge across the Euphrates at Bertha, supported on pontoons, which could be doubled up for convenient carriage, being made of skins or leather extended on hoops; and on this bridge his army of sixty-five thousand men, with all their animals, crossed over that celebrated river. Rafts supported on the inflated skins of goats and sheep newly slaughtered, are to be seen at this day on the Araxes, the Tigris, and Euphrates, as well on other rivers of the East. But the skins must be constantly renewed, as a little wear and exposure ren-

* "The passage of the Douro, in May, 1809, by Lieut.-Gen. Sir Arthur Wellesley, may be cited as a splendid and very instructive example of what may be effected by judicious combinations and arrangements, with very trifling material means, in forcing the passage of a river not properly watched and guarded." —*Douglas on Military Bridges*.

ders them unfit for use. It is to be remembered that at the remote periods we have alluded to, no great concentrated weight, such as that of a heavy gun, accompanied the march of an army; but nearer our own time, (in 1807,) we find that a Russian force, with its artillery, actually crossed a large river when much flooded, on a bridge in some respects similar to that of Julian; for it is described as having been supported on open pontoons, which consisted of wooden frames covered with tarred sailcloth. The French had a pontoon equipment at one time, in which the supporting vessels could be filled with air without the process of inflation, but they required to have the varnish or lacquer, which rendered them water-tight, always renewed before use. Both these kinds of pontoon, it is said, could be taken to pieces and conveniently packed in wagons. At home also different plans for approximations to the bridges alluded to, all apparently more or less suited to the wants of the Service, have from time to time been brought forward; but we do not find that any boat or pontoon, able to support artillery, yet itself so light as to be carried by a horse or mule, had ever been constructed previous to those which form the subject of this notice; and such a pontoon equipment admitting of being occasionally at least, conveyed without wheeled carriages, still remained an important desideratum in military science.

Colonel Mackintosh seems at once to have directed his attention to the attainment of this object, in planning the construction which we are about to describe, and it is evident, that if successful in this, all difficulty must cease as to the construction of smaller bridges on a similar model. The substitutes for pontoons which he has employed, are entirely composed of strong air-tight canvas, or of ordinary sail-cloth, strengthened by cordage, with the necessary metal rings, &c. The method * used for preparing the first-mentioned material, is known to the public from having been much applied to less substantial textures, made up in various shapes, and intended for various purposes. Formed of these light materials, the pontoons weigh under two cwt. each, a very easy load for a horse or mule, yet it will be seen that they were proved by experiment to possess sufficient strength and buoyancy to support upon the water the largest guns used with an army, together with the heaviest wooden superstructure employed in the formation of our pontoon bridges. There is every appearance also of their possessing sufficient durability to encounter the wear and tear of service, and with ordinary care there seems little risk of their being often disabled by accident; but the experience of a campaign can alone place this matter beyond a doubt. Any shape and dimensions which have been tried in pontoons made of more solid materials, can be adapted in constructing these in question; the form of a boat, or of a cylinder with hemispherical ends, being as easy of attainment with these materials as the plainest figure. In making these pontoons †, a series of air-proof cases

or vessels prepared as stated, and forming separate compartments, were enveloped in outer cases of ordinary sail-cloth of the prescribed form, which are closed only by lacings; and this arrangement would make it easy to remove a damaged or perforated inner case even when on the water, as the floating power of the pontoon would only be partially affected by such an accident *. To facilitate packing or conveyance by single horses or mules, the outer case may also be divided, and each half of the pontoon can then be rolled up, and conveniently carried, (with its air-cases in their places,) disposed in any manner which may be found most convenient. Joining them previous to use is the work of a few minutes. Those acquainted with the construction of pontoon bridges, will readily believe that the transport on animals of the balks or long beams which pass from centre to centre of the pontoons, and support the flooring, is the most difficult matter to adjust in the carriage of such a bridge equipment as we treat of. By splicing the balks in the middle, (and several ingenious splices have been proposed,) the difficulty presented by the length of those used in our Service would in so far be overcome, and the arrangement would certainly answer, where the bridge was intended to support cavalry and infantry only; but it would seem unsafe to trust any but the lightest guns on beams so joined: and indeed, we think, that wherever artillery is to pass, the balks employed ought to be entire. Chesses, (or floating planks,) jointed in the middle, very convenient for carriage, and firm and stable when in their places in the bridge, have also been proposed; but neither will this arrangement appear to be indispensable, when it is recollect that a horse or mule can carry as much as two cwt. of entire balks or chesses even of the length used in the regulation pontoon equipment of the Service, if properly adjusted.

We have been assured that Colonel Mackintosh's experiments received, from their commencement, every encouragement at Head Quarters. Two pontoons, with a superstructure forming a raft, being ready, Lord Hill made an inspection of their powers in April last, on the Serpentine River in Hyde Park, which was selected as the most convenient piece of water near for the purpose intended. Besides his Lordship, the Duke of Wellington, Lord Fitzroy Somerset, Sir George Murray, the Adjutant-General, and several other distinguished General Officers, were present during the experiment. The inspection was intended to be private, but the novelty of the preparations soon attracted attention; and descriptions of the experiment, more or less correctly reported, appeared in most of the daily prints. The pontoons, as therein stated, easily supported a party of the Foot Guards, amounting to about forty men, although the platform used on this occasion had been constructed rather too small for applying weight conveniently in this form. The distinguished Gen-

* There are very few instances on record where a pontoon bridge has been under fire. Great pains ought always to be taken to select such a spot on the river to be passed, as to make this impossible, or at least unlikely. The tin pontoons now in use in the Service, may, we believe, be pierced through and through by a musket ball.

† The chemical process discovered by Charles Mackintosh, Esq., F. R. S.

‡ The pontoons were constructed under the able superintendence of Mr. T. Hancock.

eral at the head of the Army having thus far satisfied himself of the prospect of success which was held out by the results of this trial, handed over the further scrutiny of the construction to the Department to which this branch of the service immediately belongs; and the Master-General of the Ordnance accordingly directed it to be submitted to the consideration of the Select Committee at Woolwich. This Board, composed of General and Field Officers of the Artillery and Engineers, (at the head of which was then the late lamented Lieutenant-General Sir J. Maclean,) met for the purpose of the investigation, at the Royal Arsenal, and minutely examined the plan and construction of the proposed equipment. The pontoons were first inflated by means of small bellows, and the cocks closed with a key, the whole operation occupying four minutes. They were then placed on the canal, and a raft being formed of two of them, with the necessary wood-work, a party of the Artillery went upon it, and, as at the first trials, rowed it about upon the water. All this was executed with ease and expedition. A second experiment took place a few days after, in presence of the Master-General himself, when a 9-pounder field-gun, with its limber and service ammunition, was placed on the raft, with men to row it; and with this weight the pontoons were submerged three-eighths of their depth only.

With this trial the experiments at Woolwich terminated; but, as it was very desirable that the pontoons should be tried with others approved in the Service, two, which were nearly of the length of the tin pontoons, were subsequently sent to Chatham, at the season when the pontoon practice occurs there. They were at first tried as a raft, rowed by six men; on which occasion the same wooden superstructure which is employed in the regulation pontoon train was placed upon them. They worked well, crossing the current of the Medway easily. They then moved up the river a distance of several miles, in company with the other rafts forming the bridge train; and on various subsequent occasions took their place at the practice, sustaining, like the other rafts, twenty-five feet of superstructure, whenever they anchored and formed the bridge. On one of these occasions they supported a siege 24-pounder, on its travelling-carriage, weighing upwards of four tons (83 cwts.)

In novel constructions like this, it is not to be expected that perfection can be attained at once; and it is highly probable, that great improvements may be made in the one now before us. Of this we believe Colonel Mackintosh is himself quite sensible, and hopes that, by varying the form of the pontoons, greater power than they at present possess, in stemming strong currents with contrary winds, will be attained. Their great lightness, of course, causes them to make more *leeway* when working as a raft, with wind and tide strong against them, than the metal pontoons do; but however advisable it may be, for the sake of practice, to exercise the officers and men of a pontoon train in thus ascending a river as often as possible with their rafts, it seems doubtful that the movement is likely to be much called for on service. When formed as a bridge, and when the

pontoons would consequently be anchored, their *catching the wind* will be of little moment, as long as they do not offer too strong a resistance to the current.

It may be observed, in conclusion, that these pontoons seem well calculated to send on service where economy in sea-carriage is essential; for the metal pontoons take up a great deal of room on board ship in comparison to the first mentioned. Their bulk and weight being so trifling, an extra number might always be carried to meet emergencies; and even where the present pontoon equipments might be used, a certain number of the canvas pontoons would, we are convinced, often prove useful in supplying additional *means of flotation*, in case of deficiency, and might also be highly useful to detach with corps engaged on skirting movements of a desultory nature. Before the victory of Toulouse, considerable delay occurred in crossing the Garonne above that city for want of a couple of additional pontoons, twenty-six yards of river still remaining to be crossed after all the pontoons in the train had been placed in line, and this at a moment when the enemy was occupied in fortifying his position, and every hour lost in getting across the river was important.

PRUSSIAN ARMY.—PUNISHMENTS.—The Regulations prescribing the punishments to be inflicted in the Prussian army for breaches of discipline extend to forty-seven Articles, the principal enactments of which may be brought under the subsequent heads.

Art. V gives discretion to commanders to inflict the following punishments, viz: In the case of officers.—1. Reprimands may be given either without any witness being present, or in the presence of a superior officer, or in that of the whole corps of officers, or in a parole-order (in which case the offence is to be specified in the parole books,) or arrest may be ordered, and confinement in private apartments for a term not exceeding fourteen days. In the case of non-commissioned officers, or privates placed in the same rank with them, as well as such as are acting for them (called vice sub-officers.)—Punishments. Mounting double guard, or other extra day's duty (*straf-dujour*;) arrest in barracks or quarters, or any minor punishment, duration not to exceed three weeks: modified arrest fourteen days, the latter not to be inflicted in the cases of non-commissioned officers carrying a sword, or individual occupying similar rank. In the case of privates and freed soldiers, (*gesfreide*,) in the class of minor punishments are—exercises by night with recruits or in a separate squad, double guards, or a day's punishment in-doors (*straf-stubendujour*;) hard labor in barracks, stables, mounting-rooms, or shooting places; appearing at musters, either on foot or mounted, in a particular dress; withdrawal of the free disposal of pay, and consignment of the amount to the custody of a non-commissioned officer, or the distribution of it in daily portions; or punishment by arrest, in barracks or quarters, or in a mitigated form, term not to exceed three weeks, or arrest for fourteen days or for one week. In the case of free soldiers, loss of their rank, with that of the immunities attached to it. In

the case of soldiers of the second class, besides the preceding punishments, corporal inflictions—offenders may be punished with thirty stripes of the cane; or if they belong to sections already under punishment, or condemned to hard labor, forty stripes, in military form (*disciplinarisch.*) On the march in camp, or under other circumstances where arrest cannot be inflicted on non-commissioned officers or privates, the mulct shall be, for the time during which arrest would have been incurred, the withdrawing of the usual issues, as, for instance, of brandy and tobacco, and, in the case of privates especially, condemnation to any laborious services which may be required; in lieu, also, of minor arrest, the binding of the offender to a tree, or wall, in such a manner that he can neither lie down nor seat himself: this last punishment, however, not to exceed three hours per day, and as much care as possible to be taken not to inflict it in public. Art. VII enjoins, with respect to minor punishments, that every precaution be taken not to wound the individual's feelings of honor. Corporal punishment is at no time to be inflicted in public; and if there be any reason to question a man's capability of bearing it, the fact must be ascertained by medical examination. Art. VIII enacts that arrest in barracks or quarters is not to exempt the offender from being called upon duty pending its duration. By Art. XXXI the Landwehr is subjected to the same punishments for breaches of discipline as the troops of the line. Art. XLII subjects all military employés who are exclusively serving under military authorities, to such punishments as their superior officer may adjudge, provided they are within the prescribed limits, and conformable to the relative rank which the offender holds.

REMOUNTS.—Every cavalry regiment is allowed an annual remount of sixty-three horses, being in the proportion of one to every nine horses. The military Board of Remounting purchase the huzzar horses in the eastern provinces Prussia, and the dragoon horses in Brandenburg. The regiments despatch a party to fetch their horses in the autumn months. The sum allowed by Government for purchase is eighty dollars, (about 11*l.*) for the light cavalry, and eighty-five (about 11*l.* 14*s.*) for the heavy. After the remount arrives the supernumerary horses in the regiment are sold by public auction. The average mortality of the light cavalry has been estimated at twelve horses per annum; and the sales at about fifty. The prices which the ejected horses fetch vary from about 2*l.* 15*s.* to 9*l.* 10*s.* (20—70 dollars.) "I cannot find words," says M. F. Villeroy, a French breeder, "to convey to you any conception of my feelings on comparing the care which horses receive in Germany, and the shameful neglect with which they are treated in France. There are regiments in our service who have lost more than one half of the horses they received in the spring. And the causes of the evil are so manifest and notorious that it would seem as if there existed a wilful design to avoid adopting any remedy, arising out of that spirit of covetousness which makes the lives of thousands of horses, as well as the enormous outlays upon them, a subject of gainful speculation."

SPECIMEN OF A MILITARY MUSTER IN THE OLDEN TIMES.—In the 23d of Henry the Eighth, 1532, at a general muster in London, were first taken the names of all men within this city and liberties only, (which reach not far without the walls,) from the age of sixteen to sixty, also the number of all harnesses, and of all sorts of weapons for war; then they drew out of these only such able men as had white harness, and caused them all to appear in white coats, white breeches, and white caps and feathers; and because notice was given that the king himself would see them muster, they all prepared to appear as splendidly as they could: and to that end, the Lord Mayor, Aldermen, Recorder and Sheriffs, and all who had been Sheriffs, had all white harness, and over that coats of black velvet, with the arms of the city embroidered thereon, each one a great gold chain, and mounted on a goodly horse, with rich trappings, on their heads velvet caps, in their hands battle-axes gilt; each Alderman and the Recorder had four halberdies, in white silk or else buff coats, waiting on them, with gilt halberds; and the Lord Mayor had sixteen tall men appareled in white satin doublets, caps and feathers, chains of gold, and other gorgeous attire, with long gilt halberds, following his Lordship at a distance; but next to him he had four footmen in white satin, then two pages clothed in crimson velvet and cloth of gold, riding on gallant horses richly furnished, one of them carrying the Lord Mayor's helmet, and the other his pole-axe, both richly gilt and adorned. Most of the citizens of any quality or office were in white satin or white silk coats, with chains of gold, and some with rich jewels. What was the number then of men-in-arms, was not recorded: but that may be guessed at by what follows. They mustered in Mile-end-Fields, and before nine of the clock in the morning, began to march, entering at Aldgate, in excellent order down to Westminster, where the King and court stood to view them passing by; thence they marched about St. James's Park, so through Holborn, up to Leaden Hall, and there disbanded immediately; and yet this was not done till five of the clock in the evening, which was eight hours' continued march.—*Angliae Notitia, or the Present State of England, by Edward Chamberlayne, L.L.D., R.S.S. London, 1676.*

WORKS OF FORTIFICATION IN CONTEMPLATION.—We are informed that some officers additional to those already employed under Colonel Estcourt have been appointed for the opening of the road between Madawaska and this city; and the works are to be carried on during the summer on that road. Also at this fortress, works are in contemplation to which the summer months will be devoted. Among the rest, the ditches round the Citadel will be deepened.

By the *Castor* we are told that near five hundred men, chiefly Canadians, have been engaged for the spring by the Commissioners engaged in marking out the boundary between the British Provinces and the United States. It is required, says the *Castor*, by their contract, that each of these men provide himself with a musket, and give three hours daily to military drilling. Some of these men set out for their place of labor, almost every day, as their contracts are signed.—*Quebec paper.*

STATISTICS OF THE BRITISH ARMY.

RETURN showing the Strength of the REGULAR ARMY, including *India, AUGMENTATIONS, REDUCTIONS*, in each year, from 1814 to 31st March, 1839, both inclusive; the number of CHELSEA PENSIONERS, and the CHARGE thereof; the INCREASE and DECREASE in the NUMBER; the Number of Men to whom permanent or temporary PENSIONS were granted; and the Number of permanent PENSIONS taken off the LIST.

	RANK AND FILE.				Number of Pensions granted.	Total Number of Pensioners.	No. of permanent pensions taken off the list.	Increase of Numbers.	Decrease of Numbers.	CHARGE.				
	Effective on 25th January.	Establishment.	Increase.	Decrease.						L.	r.	d.		
1814	237,946	270,260	-	-	11,697	-	31,201	1,659	-	511,947	16	7½		
1815	194,977	214,136	-	56,124	4,753	-	43,531	4,687	12,330	641,542	13	2½		
1816	175,649	178,752	-	35,384	14,176	-	47,176	3,032 ^(b)	3,645	763,699	16	11½		
1817	145,993	124,952	-	53,800	6,691	-	64,217	2,556	17,041	887,864	2	6		
1818	123,269	118,766	-	6,186	5,023	-	70,091	2,882	5,874	925,450	5	10½		
1819	102,860	89,710	-	29,056	5,723	-	75,051	2,275	4,960	966,620	11	11½		
1820	98,979	100,068	10,358	-	2,360	-	68,548	3,691	-	(c) 6,503	895,044	6	6½	
1821	96,190	90,456	-	9,612	4,180	-	69,446	1,953	898	-	902,984	3	6½	
1822	84,412	82,054	-	8,402	2,900	-	81,365	4,639 ^(d)	11,919	-	999,696	5	10½	
-	-	-	-	-	15,379	-	-	-	-	-	-	-	-	
1823	81,713	82,606	552	-	3,635	-	81,189	4,706	-	176	1,235,252	19	0	
1824	83,720	87,862	5,256	-	3,226	-	81,288	4,246	99	-	1,242,344	13	4½	
1825	85,638	91,595	3,733	-	2,894	57	81,877	3,694	589	-	1,268,039	19	10	
1826	97,325	105,274	13,679	-	3,963	180	82,734	3,413	857	-	1,297,947	5	9½	
1827	99,707	102,814	-	2,460	3,364	168	85,515	3,461 ^(e)	2,781	-	1,336,556	4	7½	
1828	99,334	102,539	-	275	2,381	194	85,834	2,970	319	-	1,346,553	12	9	
1829	96,209	96,139	-	6,400	2,394	291	85,756	3,684	-	78	1,323,574	17	3	
1830	92,805	88,102	-	(f) 8,037	1,598	388	85,724	3,168	-	32	1,348,814	14	10½	
1831	88,037	95,679	7,577	-	1,614	239	84,534	4,622	-	1,190	1,334,291	2	4½	
1832	to 31 Mar.	95,088	95,837	158	-	1,649	459	81,667	6,120	-	2,867 ^(g)	1,654,465	10	4½
1833	-	-	-	-	-	-	-	-	-	-	-	-	-	
1833-4	93,979	95,791	-	46	1,865	639	77,666	4,576	-	4,001	1,399,683	7	0½	
1834-5	91,460	87,643	-	(f) 8,148	2,013	733	86,538	3,946 ^(h)	8,872	-	1,359,708	13	3½	
1835-6	87,394	87,642	-	1	1,910	624	84,960	3,589	-	1,578	1,328,658	7	6	
1836-7	86,739	87,642	-	-	1,901	753	84,559	3,396	-	401	1,339,158	3	4½	
1837-8	86,417	87,641	-	1	2,074	891	83,556	4,398	-	1,003	1,336,299	12	11½	
1838-9	89,091	90,276	2,635	-	2,853	560 ⁽ⁱ⁾	83,861	4,056	305	-	1,304,311	3	5½	

* Transferred from Kilmainham Hospital.

(a) The sums paid on account of the commutation of pensions from 1814 to 1830, were exclusively granted to pensioners not natives of the United Kingdom, under the authority of the 52 Geo. III., c. 109.

(b) The increase would have been greater, but the pensioners were embodied in Veteran Battalions in 1815.

(c) This decrease arose from the pensioners having been embodied in Veteran Battalions in 1819.

(d) This increase was caused by the transfer of the Kilmainham pensioners.

(e) This increase arose from the final disbandment of the Veteran Battalions in 1826.

(f) The decrease in the years 1830 and 1834 was effected by the Army not being recruited to its full establishment.

(g) This increase of charge was owing to the commutation of pensions, and to there being five quarters in 1832-3.

(h) This increase principally arose from the transfer of the Ordnance pensioners to Chelsea Hospital.

(i) There would have been a decrease of numbers but for the addition of 1,704 Negro pensioners, herebefore paid through the Treasury.

• HOWICK.

Communication.**BURSTING OF THE PEACEMAKER.**

In reading the report (in the Chronicle of the 14th March) of the Naval Court of Inquiry in relation to the bursting of the gun on board of the Princeton, I was induced to notice the following paragraph: "In regard to the mode of loading and firing on every occasion, and emphatically that which was followed by the explosion, it is established by the fullest proof, to the entire satisfaction of the court, that every care and attention which prudence and professional capacity could dictate was observed. No shadow of censure in this report can be attached to any officer or any of the crew of the Princeton." I regret very much that the court did not state in the most precise terms the manner in which the gun was loaded on that occasion; as it is, the world is left to conjecture, as there are many ways of loading a gun. I was informed on board the Princeton that the loading was after the most common method. That is, by shoving the cartridge to the bottom of the bore, and the loose ball against it. If this is correct, and I have no doubt of its truth, it is the most defective way of loading, as I shall endeavor to show.

In order to do this, it is necessary to enter into the details of the casting of the shot, the bore of the piece, &c. In casting shot of the size of those used in the gun in question, (about twelve inches in diameter,) it must be evident that the heavier particles of the metal will settle to the bottom of the mould; so that the centre of gravity will not be found at the centre of the shot. This will cause the shot to roll very easily when placed in certain positions, which I shall explain when I come to the manner of loading.

The exploded "peacemaker" was what is termed a "chambered gun." That is, a portion of the bore near the bottom is much smaller in diameter, so as to receive the cartridge. The ball to fit close against the shoulder and cartridge.

It is a fact established beyond doubt, that if at large space be left around powder, the explosive effects are vastly increased. Ask a military engineer if the effects in exploding a mine are not greatly increased by leaving a large space around the powder. Ask, even an ignorant backwoodsman if his rifle will not probably burst if he fires it with the ball part of the way down. They will answer in the affirmative.

If a well made rifle will burst under such circumstances, why not a cannon?

The "peacemaker" being loaded as I have explained, and the heavier hemisphere of the ball turned towards the muzzle, in lowering the muzzle it is more than probable that the ball would roll from the cartridge, and this might easily be one third of its circumference, leaving a space about equal to the diameter of the ball. Supposing this to have been the case, this of itself would be sufficient to account for the bursting of the gun, without taking into consideration the defects of the gun in regard to its manufacture.

If, on the other hand, the ball had a sabot attach-

ed to it, as it should have had, it does not follow that the ball was pushed close against the charge; nor could this be satisfactorily proven unless some responsible officer stood by and saw that the rammer went down the proper distance.

This remark would also apply to the ordinary manner of loading. But let it be taken for granted that the ball was pushed fairly against the charge, it still may have rolled from it.

The manner of firing the gun has not been explained by the Court of Inquiry. It was fired by a newly invented lock, which fires when the piece is brought to the required angle. The lock is set to any required angle, and at sea the rolling of the vessel brings the axis of the gun to the proper angle, when it is suddenly fired. The construction of the lock is as yet a secret of the inventor. To imitate this motion in smooth water, so as to give the gun the proper depression, the muzzle of the gun was lowered by the men until the axis came to the proper level, when the explosion took place. In thus depressing the muzzle, the jarring motion no doubt caused the ball to roll forward, and perhaps to a considerable distance; if so, the bursting of the "peacemaker" is readily accounted for.

It may be well to offer a few remarks upon the cause of the explosive effects of powder being increased by space. It is an established fact that the burning of powder is very sensibly progressive, not instantaneous. At the instant the gas from the powder begins to evolve, it throws the powder in front of it, forward in the gun, (the cartridge being ignited at the bottom of the chamber.) This is shown from the fact that part of the powder may be thrown out of the gun if the charge is too great. If the ball fits closely against the powder, it is evident that the instant the gas begins to evolve the ball must move, and this too before all the powder has taken fire. If the ball is some distance from the charge, the powder is thrown forward and a much larger quantity ignited in a given time. This would particularly apply in a chambered gun, for the powder would be thrown forward into a larger space and so scattered as to ignite the whole mass instantly; for some of the enclosed air would escape around the ball, giving enough space for the powder to pass freely towards the ball. Thus the flame being permitted to pass readily through the powder, the explosive effects of twenty-five pounds of powder, might become much greater than from fifty pounds.

It is known by actual experiment that any heavy body offers immense resistance in passing suddenly from a state of rest to a very high velocity. In the case of a cannon ball it would offer the same resistance whether placed against the charge, or at one foot from it. The pressure of the gas against the interior of the piece is proportional to the squares of the surface exposed to its action. Therefore it must follow, that if there is a sudden evolution of a large volume of gas, and a large surface of the bore of the gun exposed to its violent action, the piece must in all probability burst. Such was no doubt the case in the "peacemaker," and in many other cases of the bursting of guns on our forts and vessels of war.

I believe it is a very common practice in the Army and Navy to load guns, in the ordinary target practice, with a round shot without a sabot. If so, the ball may very easily roll from the charge. For if the fort is much elevated above the water on which the shot must strike, the muzzle of the piece must be lowered in proportion. From the rolling of a vessel of course the risk is much greater.

It is hoped that these remarks may have the effect of calling the attention of the proper authority to this subject. If properly attended to, many valuable lives may be saved, as well as much public property, from destruction.

CANNONIER.

National Institute.

GEORGIA HISTORICAL SOCIETY.

An adjourned meeting of this Society was held at their rooms, on Tuesday evening, the 9th April; the President, the Hon. J. M. Wayne, in the chair.

Mr. Hodgson, delegate to the late Convention of the National Institute at Washington, made a very interesting report of his proceedings in that capacity, and a no less interesting abstract of the proceedings of the Institute, during his short visit to Washington, a copy of which will be found below.

Dr. Caruthers moved the following resolution, which was unanimously adopted.

Resolved, That the thanks of the Society be returned to Wm. B. Hodgson, Esq., for his able and efficient representation of this Society, at the annual meeting of the National Institute at Washington.

Report of W. B. Hodgson, Esq., the Delegate of the Society to the National Institute at Washington.

GENTLEMEN: I have been deeply sensible of the honor which I received from this Society, in my selection as their Representative Delegate to the National Institute at Washington. This flattering election was prompted, I am quite sure, rather with reference to the *zeal* which I would bring to the delegation, than to the *ability* with which I might sustain it. In accepting your representation, so highly honorable to myself, I recollect, that every man has *some* shoulders, and these it is his moral obligation to apply, in supporting the ark of public good, of human science and improvement.

I reached Washington on the 1st day of April, too late to hear the opening address of Mr. Senator Walker, of Mississippi. My earlier arrival was prevented by bad weather occurring at Charleston. I have to regret this, because the opening of the Institute was accompanied by most imposing formalities, and instructive addresses. The President of the United States, who is, *ex-officio*, the chief officer of the Institute, delivered an *ex tempore* address, as initiatory to its proceedings, which was represented as peculiarly felicitous and appropriate.

I delivered to the Corresponding Secretary, my credentials from this Society. He conceived it to be most creditable to the Historical Society, thus to evince its desire to promote the high objects of general science, in which too is involved high questions of patriotism and American feeling.

Many other scientific bodies had sent their delegates, and among them may be particularly noticed our sister Society, the Historical of New York. This delegation was distinguished alike for its numbers, and the illustrious character of its members. Among these was the venerable Albert Gallatin, a name equally eminent in the councils of state and in the halls of science.

I remained but three days in Washington. Imperative engagements required me then to return home. The proceedings of the Institute have probably occupied ten days. On the third day of its session, the order of exercises required me to read a

memoir on the organic remains and geology of the Atlantic coast of Georgia, for which I had been specially invited by the Committee of the Institute. In addition to this, I had intended, in immediate connection with my appointment from this Society, to read a paper on the history of its rise, progress, and its future designs. I found, however, that there was not time for this, from the number of scientific men in attendance with important papers to be read. This may be the subject of a future communication, for the published volumes of the Institute's transactions.

The Institute was open in the morning and at night. It is quite impossible for me to say how many men of science were assembled, but the number was undoubtedly large. There must have been forty elaborate papers read during the week, besides those which were sent by those who could not attend. To instance the great and extensive interest felt throughout this vast republic, for the success of this Amphyletic Council of Science, there were three learned papers read from the distant State of Ohio.

Those whom I heard address the Institute, were the Rev. Mr. Humphreys, of St. John's College, Annapolis, on the economy of science, in relation to government; Lieut. Maury, U. S. Navy, on the Gulf Stream; Professor Hallowell, on the liberation of caloric in some chemical changes that are attended with an enlargement of bulk; the Rev. Mr. Morris, on the past and present state of Entomologic Science in the United States. This paper contained a beautiful and just tribute to the zeal and science in this department of Major Le Conte, a distinguished citizen of Georgia. Professor Tucker, of the University of Virginia, read an instructive paper on the dangers most to be guarded against in the future progress of the United States. His subject led him to allude to our domestic institutions in the South. He here illustrated the policy and action of the British Government, in a homely, to be sure, but most effective anecdote of an old woman, who had for many years been in the habit of borrowing her neighbour's brass kettle. She finally got an old kettle of her own, and THEN she publicly announced that she would neither *borrow* nor *lend*. Mr. Tucker was instructive in the philosophy of politics. Professor Jacobs explained the causes of the Indian Summer; and Mr. Dallas Bache presented a comprehensive review of the History of Science in Europe and America. He said that the National Institute would sustain the interests and character of American Science, and assert for it its proper and just position, which was often most unworthily depreciated in Europe.

But, gentlemen, there was yet one paper by Professor McCulloch, of Washington College, Penn., "on the attraction of a planet upon a material point in space." I can never forget this youthful philosopher. Had I never before been impressed with the beauty of science, its wonderful power in investigating and establishing the laws which govern our planetary system, I should have returned from the Institute with an exalted appreciation of immortal

mind. By a complex and profound application of mathematics, he had worked out the law of planetary perturbations. In his *ex tempore* remarks, it is difficult for me to say whether I was most entranced by his abstruse science, or by his winged words of eloquence. Such are the impressions made upon me by this youthful disciple of Newton and Laplace.

The National Institute, with such results as I have but imperfectly presented, addresses itself to the affections and support of this Society, and of the friends of science in Georgia. I am persuaded that the diffusion of useful knowledge will be most efficiently promoted, by the periodical assemblage of this great body of scientific men. The State has its Congress, Religion has its Conventions, and Science should have its Institute. Abroad, it will elevate our national character; and whilst knowledge is not the *peculium*, the private possession of States or Continents, there is a just pride in achieving and asserting among the nations of the earth, that "equal condition" in intellectual improvement, to which America, by her researches and discoveries, may be entitled. To this great object the National Institute may eminently contribute.

At Washington, the seat of our Federal Government, this Institute is held. It has its library to form and preserve, its correspondence to maintain, its extensive cabinets and archives to arrange and protect, its numerous and valuable papers to publish and distribute. These expenses have been met, thus far, by individual contributions. They cannot much longer be sufficient for such an extensive plan.

The Congress of the United States accepted the trust of half a million of dollars from a munificent and enlightened Englishman, Mr. Smithson, descended from the Dukes of Northumberland. The object of the trust was the diffusion of *useful knowledge among men*. This fund may now amount to the sum of \$700,000. No mode of fulfilling the design of the *cestui qui trust* can be conceived to be better than that of assisting the National Institute. It has embodied and concentrated the thoughts and labors of the eminent minds of this country, and the Institute wants the means of diffusing the useful knowledge already collected. It is to be hoped by us all, whether we regard the character of our government, or the interests of science, that the objects of this princely trust, since it has been accepted by the United States, will speedily be executed.

U. S. STEAMER MISSOURI.—Capt. J. T. Newton and Purser R. M. Price, of the U. S. steam frigate Missouri, arrived at New York on Thursday last in the packet ship United States. Capt. Newton has been getting out the property from the wreck of that vessel, much of which he has sent home. Before leaving Gibraltar he executed a contract for raising the hull and remains of the wreck, upon salvage, reserving the right for the Government to take every part at an appraised valuation, the contractors first landing the engines for the benefit of the Government, without salvage or charge. The work he thinks, has been commenced ere this. There is great probability of every part of the remains reaching the United States.

Domestic Miscellany.

[*A treat for the lovers of the marvellous.*]

APPARATUS OF WAR.—While explosions have been going on in Europe and this country for various purposes, in the midst of universal peace, little or nothing has been said of the magnificent display of destructive effect exhibited below this city by Mr. Wm. W. Hubbel, with his explosive concussion bomb shells, witnessed by many gentlemen of this place, and another experiment made during a violent rain storm at Sandy Hook, on a larger and much more destructive scale. Powerful as this shell is, which will enable a 74 gun ship to beat off any four 110 gun ships at one time, still Mr. Hubbel does not rest here, but has invented apparatus which will arm and equip a steam vessel, that will beat off, and in a great measure destroy, the largest fleet of vessels of war usually assembled in an engagement on the ocean. His means, as explained by himself, are as follows: The steamer is propelled by a new kind of submerged screw propeller, which for simplicity, lightness, and particularly for the propelling power it gives, has the preference among several practical scientific gentlemen over any similar contrivance. She will throw his tremendous explosive shells from eight 10-inch Paixhan guns amidships; twelve 42-pound carronades fore and aft; and one 10-inch Paixhan gun on her bows. Her stand of muskets will consist of a new kind, which he invented and had made; they were loaded and fired eight times in two minutes, the bullets perforating, in a sheet of

letter paper, through a two-inch oak plank, and were flattened against a stone, at the distance of seventy yards, off-hand shots. (This musket surpasses any thing to shoot we ever saw, the sheet of paper is in our possession, and may be seen at our office.) On platforms elevated from her deck by iron rods, will stand six army destructors, and one on each top, mounted on swivels, the weight of each being five hundred pounds, and each firing thirty lead bullets, one inch in diameter, every minute; taking effect at the distance of 1½ miles, managed by three men. (This engine of destruction has not been completed, but we are assured that every experiment has been made, proving that it will be entirely successful.) To complete his armament will be ten of his submarine batteries, which have been tried in a small size with entire success, two being now constructed, each sufficiently large to blow up a line-of-battle ship. The steamer, when beating off, or making a descent on a fleet, sends out her submarine batteries to grapple the fleet, at the same time keeping up a tremendous fire from her Paixhan guns, with her explosive concussion bomb shells.

The submarine batteries* will run directly to the fleet, without any part of them being visible, pass under the vessels, and follow them. In one second from the time each catches its vessel it will explode,

* For protecting harbors, these submarine batteries are always ready. In fifteen minutes they can be got out from stowage, put in the water, and make their descent on an advancing fleet of steam ships and sail vessels, blow up and defeat the entire fleet; a city apparently defenceless is, with their aid, invincible to the greatest maritime force.

shattering her to thousands of pieces. Escape from them is impossible; they can neither be found nor avoided, and are mathematically certain to go at least three miles to a ship, under her, and in one second blow her to pieces.

Should the fleet still have courage to advance, or the attack on the part of the steamer be followed up to closer quarters, the steamer's reserve, viz: her carronades, muskets, and army destructors, would then cause the destruction to increase three fold, and certainly finish the engagement in very short order.

Such is the account we have received of these great naval inventions, and have seen enough to make us believe that the description of their destructive qualities is not exaggerated.—*Phila. Mercury.*

THE GREAT BRITAIN AND THE GREAT WESTERN STEAM-SHIPS.—Although we believe it to be a judicious step in the present state of the affairs of the Great Western steam-ship company to sell the celebrated vessel from which they take their name, it is not without regret we have to state that the first of ocean steamers has passed into other hands, having been sold to the Oriental Steam Navigation Company for £32,000, including her late complete repairs. As she will be employed as a packet-ship, she underwent on Thursday and yesterday a thorough inspection on the part of the government. Her timbers were opened in various places, and with one trivial exception, they were found to be in sound and admirable condition. This strict scrutiny concluded, there can be no doubt as to the reputed excellence of the Great Western as a sea-boat, notwithstanding the tear and wear and buffeting she has undergone since she first sailed from Bristol to New York. As to her colossal successor, the Great Britain, we hope the solicited mediation of the Board of Trade will be available for her liberation. On further consideration of the plan of floating that huge vessel of 3,600 tons, out of the too narrow dock, on iron tanks, it appears to be so fraught with danger that we understand it must be abandoned. So then the Great Britain is in the predicament of the fatted weasel, that, while feeding and fattening in the farmer's granary, grew too big for the hole by which it gained admission. The mutual difficulties of the Steamship Company and the Bristol Dock Directors have, however, been fairly brought under the consideration of the Board of Trade. The case is one in which the nation at large is concerned, and the interests of commerce and navigation are not a little involved, and though it is anomalous and without precedent, it cannot surely be without remedy. The great prisoner at the bar cannot be incarcerated for ever, but will doubtless soon be transported beyond seas.—*Bristol Mirror.*

THE U. S. STEAMER UNION.—The Washington Correspondent of the Philadelphia Ledger gives the following account of the recent trial of the speed of the Union.

This afternoon Lieutenant Hunter, of the United

States Navy, one of the most talented, industrious, and modest officers in the service, made an experiment with the U. S. steamship Union, 1040 tons burthen. A number of Senators and members, Mr. John Tyler, jr., and a large body of officers, were present, and the experiment succeeded beyond the most sanguine expectations. If anything is proved by an actual fact, it is the entire efficiency of the submerged propellers. Since the Union has been built, Lieutenant Hunter has made a series of improvements; the experiment therefore, was but a feeble index to that which under these circumstances the ship may be able to perform. She proceeded against wind and tide, at the rate of good twelve knots an hour, the propelling wheels making at first twenty-nine, and then, when the machine was a little heated, thirty, and at last thirty-three horizontal revolutions in the minute. The engines, too, are not by any means the most powerful or constructed after the best model.

The two together have two hundred and fifty horse power, or about one hundred and twenty-five horse power each. The cylinders are twenty-five inches in diameter, the pressure of steam equal to eighty pounds, and the stroke equal to four feet only. This makes the power of the engine very little superior to that of a common New York ferry boat, crossing over to Hoboken, and is so wonderfully efficient in practice. She was, in addition to that, laden with upwards of two hundred tons of coal and had provisions and water casks for all her crew for four months.

A trial which she made of her sailing capacity without the aid of steam, was no less successful. Nearing the Virginia Capes, she gained a mile an hour on the swiftest pilot boat, and her masts and sails are managed with the utmost simplicity and without going aloft.

Another iron Government steamer, which is building in Pittsburg by Lieutenant McLaughlin, on the same plan as that of Lieutenant Hunter, will, it is believed, have a speed of fourteen miles, and not draw more than five feet of water. The ship was cheered from the people on the wharves of Alexandria, and the salutation was returned in the same unaffected, kind manner in which it was offered. The party separated at a late hour, in the best of spirits. The Union carries but four large Paixhan guns; but those I should think quite enough, when choosing their proper stations, to sink any craft that may be ordered against them.

PROPELLERS.—The Detroit Free Press of Wednesday evening acknowledges the receipt, by the Propeller *Hercules*, Capt. WHEELER, of New York papers of Saturday and of Buffalo papers of Monday evening, in advance of the mail. This trip of the *Hercules* is an era in the annals of propellers, and fully demonstrates the great value of that class of vessels. The *Hercules* left this port at 5 o'clock, Monday afternoon, and was back to her berth again, fully loaded, at 5 o'clock this morning, thus making her trip in four days and a half, an instance of despatch rarely, if ever, surpassed by our best steam-boats. Her rate of running was about nine miles an hour.

**MONUMENT TO JOSEPH LOVELL, M. D.,
LATE SURGEON GENERAL OF THE ARMY
OF THE UNITED STATES.**

During the past winter a monument of unusual dimensions, and great beauty, which the Medical Officers of the Army have caused to be erected in memory of the late Surgeon General, Joseph Lovell, has been placed in the Congressional burying ground near this city. The structure, which was designed and executed by Mr. Robert E. Launitz, of New York, is of a rectangular form, and in the Grecian style. Upon a granite base five feet square, rests a superstructure of the finest Italian marble, weighing about ten tons, and reaching a height of fifteen and a half feet. A pedestal, formed from a solid block, two feet six inches square, and three feet high, upon which the inscriptions are cut, is raised to the level of the eye upon a double plinth, and crowned with a bold entablature having its frieze and corner proper, and finished on two sides with pediments. Over all a pyramidal shaft, twenty inches square at its foot, rises with an easy taper seven feet, terminating in a capital formed after the solemn and impressive style of the ancient sarcophagi.

In its architectural details the monument is extremely chaste and unadorned, but bold and imposing in its outline, and cannot but draw admiration from the singular beauty of its proportions.

Committee on behalf of the Medical Staff.

T. G. MOWER,	<i>Surgeon U. S. Army,</i>
S. G. I. DE CAMP,	" " "
C. S. TRIPPLER,	" " "
W. V. WHEATON,	" " "
ROBERT C. WOOD,	" " "
H. L. HEISKELL,	" " "
J. P. RUSSELL, <i>Asst. Surg.</i>	" "
BENJAMIN KING,	" " "

The following are the Inscriptions on the Monument.

[ON THE FRONT OF THE MONUMENT.]

Joseph Lovell,
Late Surgeon General
of
The Army of the United States.
Born in Boston, Massachusetts,
December 22d, 1788;
Died in the city of Washington,
October 17th, 1836.

[ON THE RIGHT FACE OF THE MONUMENT.]

In April, 1812,
On the eve
of Hostilities with Great Britain,
He entered
The military service of his country
as Surgeon,
and served with distinction
throughout the war.
After six years arduous duty
in Camp and in the Field,
He was called,
on the reorganization
of

The General Staff of the Army,
from the station
of Hospital Surgeon
to

The Head of the Medical Department.
which,
till the close of life,
He directed, improved, and adorned.

[ON THE LEFT FACE OF THE MONUMENT.]

In September, 1817,
He was united in wedlock,
with
Margaret Eliza Mansfield,
The devoted and cherished
Partner of his life,
who rests beside him
under this tomb.

Exemplary members of the church.

In all their domestic relations

They lived
Patterns of excellence,
and dying,
Bequeathed to their posterity
a rich inheritance
In their bright example.

[ON THE REAR OF THE MONUMENT.]

As a testimonial
of

His private virtues

and
Public services,
The officers of the Medical staff
have caused
This monument to be erected,
December, 1843.
*"Virtus, repulsa nescia sordidae,
Intaminatis fulget honoribus."*

THE WESTERN FRONTIER.—The citizens of Crawford county, Arkansas, assembled in public meeting, thus depict their exposed and somewhat perilous position. The meeting was called to ask of Congress further protection on the frontier. That the public may know who their "pleasant neighbors" are, they thus enumerate them:

"The half conquered Creek, brought here by constraint, with treasured vengeance festering at his breast; the chased and hunted down Seminole, panting for another display of his wonted ferocity; the Cherokee a half a century in advance of his neighbors in culture and civilization, but *negotiated* out of his wits and his temper, and warmed by the excitement of turmoil and faction; together with a cloud of tribes and fractions of tribes not indigenous to the soil, who, if they could but tutor themselves to concert of action, and that concert resolved itself into hostility, might desolate our frontier. And not our frontier only; for in one wild outbreak they have the physical power to bear their ravages to the Mississippi. This is not the language of panic; but we appreciate our position, and call on the Government to save us from the imminent danger it has brought to our doors."

Proceedings in Congress.

SENATE.

TUESDAY, APRIL 23, 1844.

The Senate resumed the consideration of the bill supplementary to the act entitled "an act regulating the pay of the navy of the United States," making indemnity to the officers, seaman, and marines, who have lost, or may lose, property by the wreck of United States vessels of war.

After a short discussion, the bill was postponed till to-morrow.

MONDAY, APRIL 29.

Mr. BAYARD remarked that various memorials and resolutions had been referred to the Committee on Naval Affairs, in relation to making certain improvements in the harbor of Pensacola. That committee desired some additional evidence in relation to the actual condition of the improvements there; and he had been instructed to submit a resolution, and ask for its adoption at that time.

The resolution was read and adopted, as follows, viz:

Resolved, That the Secretary of the Navy be directed to communicate to the Senate, 1st. A plan for the improvement of the navy-yard at Pensacola, with a detailed estimate of the cost of such improvements, and the order, in point of time and usefulness, in which the different parts of the improvement should be conducted. 2d. The depth of water upon the bar at the entrance of the harbor, and the class of vessels to which it is now adapted; whether it be expedient to deepen the entrance; and if so, in what manner it is proposed to be done, and at what cost.

Mr. SEMPLE, on leave, introduced a bill to establish an armory at Massac, in the State of Illinois; which was read twice, and referred to the Committee on Military Affairs.

MONDAY, MAY 6. *

The Senate bill, supplementary to the act entitled "An act to regulate the pay of the navy of the United States," was next taken up; and its consideration, as in committee of the whole, was resumed, the question pending being on the amendments offered by the senator from Massachusetts [Mr. CHOATE] when the bill was before under discussion.

Those amendments were, in the second section, to make the compensation, by shipwreck or accident, in case of the loss of the vessel, for any petty officer, sergeant, or corporal of marines, \$60, instead of \$25, proposed by the bill; for a seaman, marine, landsman, on service, or fireman, \$50, instead of \$20; and for a boy \$20 instead of \$15.

After discussion, the question was taken on Mr. CHOATE's amendments, and they were adopted.

Mr. ALLEN renewed his motion, made when the bill was before under discussion, to strike out the second section, [that specifying the scale of compensation, as a general law.]

Mr. HAYWOOD moved to amend the second section before the question was put on striking it out. His amendment was to strike out the word "otherwise" in the beginning of the section which runs thus:

SEC. 2. And be it further enacted, That whenever any ship or vessel of the United States shall be lost by shipwreck or otherwise, an allowance shall be made to the officers and crew of said ship, for losses sustained by them, according to such scale and under such regulations as shall be established by the Navy Department: *Provided*, &c., [specifying the grades of officers and crew and respective allowances] and insert in place of it the word "capture," so that it would read "lost by shipwreck or capture," &c. His object was to exclude such a wide latitude as the word "otherwise" admitted of, and to confine the general law to mere cases of shipwreck or capture.

This point was discussed at considerable length by Messrs. BAYARD, CHOATE, and HAYWOOD; after which, the vote was taken on Mr. HAYWOOD's amendment, and it was rejected.

Mr. BAYARD observed that, as an opportunity would offer when the case of the Grampus came up, to include the case of the Missouri, he would, in order to divest this general law of all special legislation, move to strike out the fourth section, [relating to the Missouri steam frigate.]

This amendment was adopted. So the fourth section was stricken out.

The question then recurred on Mr. ALLEN's motion to strike out the second section; upon which

Mr. BRESEE called for the yeas and nays; which were ordered.

Mr. TAPPAN moved to amend the section in the third line, before the question was put on striking out. His amendment was, to insert after the word *otherwise*, [before quoted,] the words "except captured by an enemy."

The amendment was rejected.

The question recurring on striking out the second section, the motion was negatived. Yeas 13, nays 23.

The bill, as amended, was then reported back to the Senate, and the amendments of the Committee of the Whole were concurred in.

Mr. TAPPAN remarked that he was sure his amendment, offered in committee of the whole, had not been understood, or it would not have been rejected. He should, therefore, renew his motion to amend the bill in the third line of the second section, by inserting, after the words "whenever any ship or vessel of the United States shall be lost, by shipwreck or otherwise," the words, "except by capture." His object was to exclude from the compensation proposed, all cases in which a vessel is suffered by the crew to be captured by an enemy. It was obvious that, to compensate the individuals who were to maintain their ships, for losses in case of capture, would be to hold out some inducement to them to surrender sooner than if no such inducement existed. He thought there should be no such inducement whatever held out in such cases. On this question he called for the yeas and nays; which were ordered, and being taken, the amendment was adopted, yeas 21, nays 12.

The bill was then ordered to be engrossed, as intended, for third reading.

tried. In performing the duty all superfluous matter is to be excluded, and the offences are to be stated in a correct, specific, and uniform language. The Judge-Advocate is held responsible that the force of the charges be not weakened.

12. *Sentences* awarded convicted prisoners are to be carefully worded, that the approving officer need be in no doubt as to the precise meaning of the court.

13. The Records of Courts-Martial are to be spread over as little space as possible, and the writing on one side of the leaf, or one half of the page only, thereby doubling the volume, is to be avoided.

14. Charges which may be disposed of by minor courts, are not to be prosecuted before a general court.

15. When the junior officers at posts are not otherwise engaged on duty, commanders are to encourage them to attend the sessions of Courts-Martial, in order to acquire a practical knowledge of this important duty.

MISCELLANEOUS.

16. Commanders of Departments, and Colonels of Regiments will not leave their head quarters without giving notice at Division Head Quarters; nor will *Visits of Inspection* be made except by special orders.

18. The practice of *altering the uniform clothing* of the enlisted soldier, except to fit it, is forbidden, and commanding officers will not allow the prescribed patterns to be deviated from in a single particular. No soldier will be allowed to have in his possession any garment which is not military. The wearing of vests, cravats, fancy caps, &c., by the soldier, will not be tolerated on any pretence whatever.

18. Soldiers going on pass into towns and villages will be full dressed in the neatest manner.

19. *Troops on the march* are also to wear the full dress, and to be otherwise equipped in a military manner.

20. The particular attention of all officers is called to paragraph 1292 and following, of the General Regulations. Officers on duty in camp or garrison, will wear the *uniform prescribed in regulations*, and when not on duty, good taste demands that no mixed dress—fancy and military—should be assumed.

21. Officers of the day and of the guard, and their guards, will at all times wear the full dress, except when the weather is such as to require great-coats or cloaks, when the forage cap and undress may be worn.

22. Besides causing all the "Rules and Articles of War" to be read to the troops every six months, the following portions will be read at the end of every month, in each camp and garrison in the Division—Articles 2, 5, 6, 7, 8, 9, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 36, 37, 38, 39, 41, 42, 43, 44, 45, 46.

23. A strict adherence to the requirements of "General Orders No. 53," of 1842, respecting the punishment and treatment of enlisted soldiers, will be demanded from every officer in the Division.

24. The cause of accidental deaths of soldiers will be immediately inquired into, and a minute report of the circumstances attending them will be rendered to Division Head Quarters.

25. Commanders of Departments will cause copies of General and Division Orders sent to them, to be promptly transmitted to the Posts in their Departments.

BY COMMAND OF BRIGADIER GENERAL WOOL.

ED. SCHRIVER,
Assistant Adjutant General.

ORDERS, } HEADQUARTERS 3D MILITARY DEPT.,
No. 7. } ST. LOUIS, Mo., April 24, 1844.

I. The eight companies of the 3d Infantry at Jefferson Barracks, being under orders for Fort Jesup, the Colonel commanding takes this occasion, before their departure, to express his approbation of the high state of discipline to which they have attained; a proof of zeal and attention on the part of the officers, and of obedience and correct deportment on that of the enlisted soldiers. He congratulates them on the success of their efforts in the temperance cause, and urges them to a continuance of those efforts as the surest means of securing their happiness, and preserving the respect they have so proudly won. In taking his leave of them he has but to assure them of the lively interest he feels in their welfare, and to offer them his best wishes for their happiness and prosperity.

* * * * *

BY ORDER OF COL. S. W. KEARNY.

S. COOPER, Asst. Adj't. Gen.

CORPS OF ENGINEERS.—Col. J. G. Totten, Chief Engineer, is absent from Washington on a tour for the purpose of inspecting the fortifications and military works on the seaboard of the South Atlantic States. During his absence, 1st Lieut. George L. Welcker will act as head of the Engineer Bureau in Washington.

A leave of absence of three months from the 1st inst., has been granted, for the benefit of his health, to 1st Lieut. S. H. Campbell.

MEDICAL DEPARTMENT.—Assistant Surgeons J. H. Bailey, at Fort Towson, and E. H. Abadie, at Fort Smith, ordered to repair without delay to New York city, and there await further orders.

Assistant Surgeon Fullwood, ordered from Baton Rouge Barracks to Fort Smith, for duty in the second military department.

Revenue Service.

April.

ORDERS.

5—Second Lieutenant George Hayes, to the Bureau at Washington, to relieve 2d Lieutenant Stull, who is ordered to join the Alert at Eastport.
30—Captain Thomas Rudolph to the Morris at Port-land.

Captain Michael Conner to the Jackson, East-port.

A Board for the examination of Second Lieutenants will convene at New York on the 20th inst.

The Revenue Schooner Woodbury has been ordered to Vera Cruz to receive the fourth instalment of the Mexican Indemnity.

ARRIVALS AT WASHINGTON.

April 29—Capt. J. M. Hill, A. Q. M., Fuller's.

May 3—Col. J. Bankhead, 2d arty., Gadsby's.

" 6—Lieut. B. Bragg, 3d arty., Gadsby's.

 The Chronicle will be discontinued on the first of July.

AGENCY FOR CLAIMS AT WASHINGTON.—The Undersigned offers his services as Agent for Claims upon either of the Departments or Congress.

Particular attention will be paid to the settlement of accounts of disbursing Officers, who may find it inconvenient to attend personally; especially those of the Navy. His experience and practical knowledge will afford many facilities.

Charges will be moderate and regulated by the amount claimed and the extent of services required. Communications (post paid) will receive immediate attention.

CHAS. DE SELDING,

Office, Sixth-street, next to corner of F.

References.—Commodore Charles Stewart, Commodore John Downes, A. O. Dayton, Esq., 4th Auditor, Treasury Department; A. T. Smith, Esq., Chief Clerk, Navy Department; John C. Rives, Esq., Washington; John Boyle, Esq., Washington; James Hoban, Esq., Washington; Chas. O. Handy, Esq., Purser, U. S. N.; John De Bree, Esq., Purser, U. S. N.; R. R. Waldron, Esq., Purser U. S. N.; Saml. P. Todd, Esq., Purser, U. S. N.

Jan 1-1.